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PORTABLE COMPUTER DISPLAY TILT/ SWIVEL MECHANISM AND METHOD

CLAIM OF PRIORITY

This application makes reference to, incorporates the same herein, and claims all benefits accruing under 35 U.S.C. § 119 from my application A PORTABLE COMPUTER filed with the Korean Industrial Property Office on Oct. 16, 1998 and there duly assigned Ser. No. 43763/1998.

FIELD OF THE INVENTION

The present invention relates to portable computer display, and more particularly to a portable computer display screen which can tilt and swivel about two orthogonal axes.

BACKGROUND OF THE INVENTION

Beginning in the mid-1980's, portable computers, alternately known as either laptops or notebook computers, have expanded in popularity and at an astonishing rate. Such computers are lightweight and have a display screen supported by a hinged cover that protects the keyboard when the computer is not being operated.

Liquid crystal displays (LCDs) are used in many personal computer screens. Liquid crystal displays (LCDs) are desirable for personal computers in that they are lightweight and have an extremely low power consumption in contrast to cathode ray tube (CRT) displays of conventional desktop computers. In addition, a Liquid crystal display (LCD) generally retains a great clarity of display in the presence of bright light.

All of the recent technological advances in portable computer displays have been directed toward improving the visual clarity of the information for a single operator sitting directly in front of the keyboard. However when the user of a portable computer wants to show the displayed information to other people, they either crowd behind the personal computer or physically turn the computer base to show the information. Given that the typical size of portable computers are smaller than a brief case, and the screen for such portable computer is likewise small, it is typically awkward for more than one or two people to view the display of a laptop computer. Furthermore, a sudden movement of a computer while the disk is spinning can induce a head crash. Thus, there is a need for a personal computer which can easily display the information on the display screen to more than one person and at various orientations or positions without having to shift the base of the computer.

In addition, one way to input data on screen is by using a stylus as is widely used in recent portable computers. It is inconvenient, however, to input the data using a stylus on the display screen because the cover, incorporating a display screen, is generally used to tilt about a horizontal line to approximately 110° (where 0° is the fully closed position of the cover) when used. Thus, there is a need for a portable computer which can input data on the screen using a stylus freely.

U.S. Pat. No. 4,395,010 to Helgeland, et al. entitled Device For The Setting Up Of a Data Display Device On a Work Surface, disclose a system for setting up a data display device on a work surface, functions for elevation adjusting, for rotating, and for swiveling the data display device. It is disclosed the system has a stand with a telescope member adjustable in height thereon. A base plate is attached thereupon, and a rotary plate is supported on the base plate. The rotary plate has an arch upon which sliding elements are guided, and to which the data display device is fastened.

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U.S. Pat. No. 4,453,687 to Sweere entitled Swivel/Tilt Mounting Device For A Cathode Ray Tube, discloses a device for mounting a cathode ray tube to both tilt and swivel in order to provide a most advantageous angle at a working station. It is disclosed a cross-piece is rotatably mounted in a base and a mounting plate is designed to tilt about the cross-piece, there being a frictional engagement between the cross-piece and a portion of the mounting plate. This frictional engagement has provision for varying the amount of friction so as to lock or allow varying difficulty of tilt depending on the weight of the device to be mounted and the desire of the operator.

U.S. Pat. No. 4,494,720 to Gregory, et al. entitled Tilt Swivel Base, disclose a tilt swivel base for a video terminal that includes a lower section which is supported by way of a swivel so that the lower section can be swiveled relative to a supporting surface. It is disclosed an upper section is supported on the lower section, the two sections mating at surfaces which are curved from the front to the back of the base about an imaginary axis which is located appreciably above the base. The upper section is movable relative to the lower section forwardly and rearwardly so as to adjust the tilt angle of the upper section and of a terminal supported thereby relative to the supporting surface.

U.S. Pat. No. 4,542,872 to Marino, et al. entitled Terminal With Tilt-Swivel Display, disclose a display terminal device including a tilt and swivel coupling mechanism coupling the display portion to the base portion is disclosed the coupling mechanism includes a swivel plate rotatable about a vertical neck extending from the base portion. The swivel plate includes a cylindrical top surface on which a complementary cylindrical surface of the display portion is seated. The cylindrical surfaces are spring biased toward each other by a spring mounted on a fastener extending from the display portion to the swivel plate. It is disclosed a horizontal fastener extends from the housing through horizontal slots in the neck.

U.S. Pat. No. 4,555,081 to Ennanski entitled Tilttable And Swivable Mounting assembly For A Video Display Terminal, discloses a mounting assembly for use in mounting a video display terminal on the top surface of a workstation stand which can be tilted back and forth to allow the video display terminal to be positioned for the most comfortable, glare-free viewing and which can be swiveled about a vertical axis to change the viewing direction.

U.S. Pat. No. 4,570,892 to Czech, et al. entitled Tilttable Rotating Display Monitor Mount, disclose a support base for a display monitor that provides for the rotation and stable orientation of the monitor over a range of tilt angles. It is disclosed an upper portion of the base is adapted to receive a turntable having an upper concave surface adapted to receive a complementary convex lower portion of the display monitor's cabinet. The concave surface of the turntable includes a first pair of spaced guide rails adapted to receive and engage respective complementary guide rail assemblies positioned on the convex lower portion of the monitor. It is disclosed the convex lower portion of the cabinet is further provided with a pair of spaced projections for insertion within respective elongated apertures in the turntable which are parallel to and in spaced relation with its guide rails. It is disclosed each of these projection assemblies includes engaging means such as the combination of a spring washer and coiled spring for engaging the turntable adjacent to a respective elongated aperture in maintaining the monitor firmly positioned within the turntable's concave surface. It is disclosed a biasing arrangement urges the monitor in a first direction of rotation within the turntable's concave